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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM S. WOODS

Appeal 2009-013368
Application 09/393,463
Technology Center 2600

Before ALLEN R. MACDONALD, MARC S. HOFF, and
ERIC S. FRAHM, *Administrative Patent Judges*.

FRAHM, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Introduction

Appellant appeals under 35 U.S.C. § 134(a) from a rejection of claims 1-23, 25, 28, 29, 34, 36, and 40. Claims 24, 41-45, and 47-50 have been indicated by the Examiner as containing allowable subject matter (Final Rej. 18). Claims 26, 27, 30-33, 35, 37-39, and 46 have been objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (Final Rej. 18). We have jurisdiction under 35 U.S.C. § 6(b).

We affirm in part.

Exemplary Claims

Exemplary independent claims 1 and 2 under appeal, with emphases added, read as follows:

1. A method of processing audio signals, comprising:

inhibiting at least one feedback component of an input audio signal by *adjusting a feedback-inhibiting filter using a narrowband subaudible probe signal*.

2. A method of processing at least one audio signal, comprising:

filtering a processed signal by a notch filter to form a filtered signal;
and

sending a subaudible narrowband signal having a first bandwidth into the filtered signal to form *a probe signal to probe a feedback path* having a second bandwidth.

Examiner's Rejections¹

1. The Examiner rejected claim 1 under 35 U.S.C. § 102(e) as being anticipated by Kandel (US 6,353,671 B1).
2. The Examiner rejected claims 1, 2, 5-15, 17, 18, 20, 22, 25, 28, 29, 34, 36, and 40 under 35 U.S.C. § 102(b) as being anticipated by Miller (US 5,506,910).²
3. The Examiner rejected claims 1-7 as being unpatentable under 35 U.S.C. § 103(a) over Finn (US 6,496,581 B1) and Miller.³
4. The Examiner rejected claims 8-23, 25, 28, 29, 34, 36, and 40 as being unpatentable under 35 U.S.C. § 103(a) over the combination of Finn, Seki (US 5,677,987), and Miller.⁴
5. The Examiner rejected claim 1 as being unpatentable under 35 U.S.C. § 103(a) over the combination of Stott (US 2002/0044667 A1) and Miller.

Appellant's Contentions

1. Appellant contends that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 102(e) as being anticipated by Kandel for numerous reasons, including: (i) a filter acting on a signal, such as Kandel's filter 120, fails to teach that the filter is adjusted using the signal; and (ii) Kandel fails

¹ The Examiner has presented three new grounds of rejection under § 103(a), incorporating the reference to Miller in that statements of the rejections (Ans. 3-4). Thus, we consider the third, fourth, and fifth rejections *infra*, to be based on combinations of references, now including Miller as a reference in each of the combinations.

² Separate patentability is not argued for claims 5-7, 9-15, 17, 18, 20, 22, 25, 28, 29, and 34 (*see* App. Br. 12-17).

³ Separate patentability is not argued for claims 3-7 (*see* App. Br. 18-19).

⁴ Separate patentability is not argued for claims 9-23, 25, 28, 29, and 34 (*see* App. Br. 19-22).

to disclose, teach, or discuss that filter 120 is adjusted using a signal (App. Br. 11-13; Reply Br. 2-3).

2. Appellant contends that the Examiner erred in rejecting claims 1, 2, 5-15, 17, 18, 20, 22, 25, 28, 29, 34, 36, and 40 under 35 U.S.C. § 102(b) as being anticipated by Miller for numerous reasons, including: (i) Miller fails to teach or suggest adjusting a feedback filter using a narrowband reference signal as recited in claims 1 and 36; (ii) Miller fails to disclose or suggest using a signal to adjust feedback eliminator 62, and instead feedback eliminator 62 merely operates on a signal; (iii) Miller fails to disclose probing a feedback path as recited in claims 2, 8, and 25; (iv) although Miller takes feedback into consideration, and cancels feedback, such is not a disclosure of probing a feedback path with an audio probe as recited in claims 8 and 25; and (v) as to claim 40, Miller does not disclose that system computer control 64 adjusts an inhibiting filter such as feedback eliminator 62 (App. Br. 13-17; Reply Br. 3-6).

3. Appellant also contends that the Examiner erred in rejecting claims 1-7 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Finn and Miller for numerous reasons, including Finn fails to teach or suggest: (i) a method that inhibits a feedback component of an input audio signal by adjusting a filter using a narrowband subaudible probe signal; (ii) probe signals as recited in claims 1-7; (iii) that signals 406 and 436 provide a probing function; (iv) a feedback path that is being probed; and (v) forming a subaudible narrowband probe signal to probe a feedback path as recited in claim 2 (App. Br. 17-19; Reply Br. 6-8).

4. Appellant contends that the Examiner erred in rejecting claims 8-23, 25, 28, 29, 34, 36, and 40 under 35 U.S.C. § 103(a) over the

combination of Finn, Seki, and Miller for numerous reasons, including: (i) Seki fails to cure the deficiencies of Finn as discussed with regard to the third rejection over the combination of Finn and Miller; (ii) the combination of Finn and Seki fails to teach or suggest a system configured to generate a probe signal to probe a feedback path with a narrowband subaudible audio probe signal as recited in claim 8; and (iii) Finn is devoid of any discussion about sending narrowband probe signals between the speaker and microphone subsystems, and thus the combination of Finn and Seki fails to teach or suggest all of the elements of claim 8 (App. Br. 19-22; Reply Br. 8-9).

5. Appellant contends that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 103(a) over the combination of Stott and Miller for numerous reasons, including: (i) neither Stott nor Miller disclose or suggest a narrowband subaudible probe signal; (ii) Stott discloses at paragraphs [0133] and [0134] that a signal 70 is “flat as possible across the frequency spectrum,” and therefore is broadband, as opposed to narrowband as recited in claim 1; and (iii) Stott’s disclosure of “flat as possible across the frequency spectrum” would not be understood by those of ordinary skill in the art to mean “narrowband” (App. Br. 22-23; Reply Br. 9-11).

Issues on Appeal

Did the Examiner err in rejecting claim 1 as being anticipated because Kandel fails to teach using a signal to adjust a feedback inhibiting filter?

Did the Examiner err in rejecting claims 1, 2, 5-15, 17, 18, 20, 22, 25, 28, 29, 34, 36, and 40 as being anticipated or obvious because Miller fails to teach or suggest adjusting a feedback-inhibiting filter using a narrowband

probe signal (*see* claims 1 and 36), and probing a feedback path using probe signal (*see* claims 2, 8, and 25)?

Did the Examiner err in rejecting claims 1-7 as being obvious because the combination of Finn and Miller fails to teach or suggest the limitations at issue?

Did the Examiner err in rejecting claims 8-23, 25, 28, 29, 34, 36, and 40 as being obvious because the combination of Finn, Seki, and Miller fails to teach or suggest the limitations at issue?

Did the Examiner err in rejecting claim 1 as being obvious because Stott fails to teach or suggest the “narrowband probe signal” limitation at issue?

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments in the Appeal Brief and the Reply Brief that the Examiner has erred. We agree with Appellant’s specific contentions, *supra*, as to the anticipation rejections based on Kandel and Miller, and the obviousness rejection over the combination of Stott and Miller (*see* rejections 1, 2, and 5 and contentions 1, 2, and 5 above).

Although Kandel teaches controlling a gain amplifying circuit using an injected signal tone T (col. 6, ll. 19-25 and col. 10, ll. 12-25), by setting the frequency of tone T at a predetermined level (col. 12, ll. 1-4), Kandel fails to teach *adjusting* processing filter 120 (i.e., feedback-inhibiting filter) with the injected signal tone T (*see* Fig. 4), as set forth in claim 1. Similarly, although Miller (*see* Fig. 3) teaches a system control 64 that “can control the selection and the amplification of the program material” (col. 7, ll. 20-24),

there is no disclosure that system control 64 acts to *adjust* the feedback eliminator 62, or that an adjustment is made using the narrowband reference signals of the narrow band signal adder 22 (*see* Fig. 1), as recited in claims 1 and 36.

In addition, Miller fails to disclose probing a feedback path with a narrowband probe signal, as recited in each of independent claims 2, 8, and 25, or generating a narrowband subaudible probe signal for use in adjusting a feedback-inhibiting filter, as recited in independent claim 36. We agree with Appellant's argument (*see* App. Br. 15) that Miller's generation of a reference signal to probe a path from a speaker to a microphone does not teach a probe signal to probe a feedback path. In other words, we do not agree with the Examiner that Miller's path from speaker 36 to microphones 28 on stage 60 constitutes a feedback path (*see* Ans. 6).

Stott fails to teach or suggest a *narrowband* probe signal as recited in claim 1, since Stott specifically teaches that the signal is flat across the frequency spectrum (*see* ¶ [0134]), suggesting that the signal is broadband. Thus, we are in agreement with Appellant (*see* App. Br. 22-23; Reply Br. 9-11), that Stott fails to teach or suggest a narrowband probe signal.

However, we disagree with Appellant's contentions 3 and 4 above. With regard to both the rejection of claims 1-7 under § 103(a) over the combination of Finn and Miller, and the rejection of claims 8-23, 25, 28, 29, 34, 36, and 40 under § 103(a) over the combination of Finn, Seki, and Miller, we adopt as our own (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken and (2) the reasons set forth by the Examiner in the Examiner's Answer in response to Appellant's Appeal Brief. We concur with the conclusions reached by the

Examiner with regard to Finn, Seki, and Miller (*see* Ans. 10-21 and 28-30, discussing the third and fourth rejections).

Notably, with regard to the third rejection, Appellant presents no arguments as to the combination of Finn and Miller, but merely presents arguments as to Finn (*see* App. Br. 17-19; Reply Br. 6-8). Similarly, with regard to the fourth rejection, Appellant presents no arguments as to the combination of Finn, Seki, and Miller, but merely presents arguments as to Finn and Seki (*see* App. Br. 19-22; Reply Br. 8-9). Because the third and fourth rejections are based on the Finn, and Finn and Seki, in combination with Miller (*see* Ans. 4 and 10-21), Appellant has not established that the Examiner erred in rejecting (i) claims 1-7 over the combination of Finn and Miller, and (ii) claims 8-23, 25, 28, 29, 34, 36, and 40 over the combination of Finn, Seki, and Miller.

CONCLUSIONS

(1) Appellant has established that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 102(e) as being anticipated by Kandel (*see* the first rejection, *supra*).

(2) Appellant has established that the Examiner erred in rejecting claims 1, 2, 5-15, 17, 18, 20, 22, 25, 28, 29, 34, 36, and 40 under 35 U.S.C. § 102(b) as being anticipated by Miller (*see* the second rejection, *supra*)

(3) Appellant has established that the Examiner erred in rejecting claim 1 as being unpatentable under 35 U.S.C. § 103(a) over Stott and Miller (*see* the fifth rejection, *supra*).

(4) The Examiner did not err in rejecting claims 1-7 as being unpatentable under 35 U.S.C. § 103(a) over the combination of Finn and Miller (*see* the third rejection, *supra*).

(5) The Examiner did not err in rejecting claims 8-23, 25, 28, 29, 34, 36, and 40 as being unpatentable under 35 U.S.C. § 103(a) over the combination of Finn, Seki, and Miller (*see* the fourth rejection, *supra*).

(6) Claims 1-23, 25, 28, 29, 34, 36 and 40 are not patentable.

DECISION

We affirm at least one rejection as to all rejected claims.

The Examiner's rejection of claims 1-7 as being unpatentable under 35 U.S.C. § 103(a) over Finn and Miller is affirmed.

The Examiner's rejection of claims 8-23, 25, 28, 29, 34, 36, and 40 as being unpatentable under 35 U.S.C. § 103(a) over the combination of Finn, Seki, and Miller is affirmed.

The Examiner's rejection of claim 1 under 35 U.S.C. § 102(e) as being anticipated by Kandel is reversed.

The Examiner's rejection of claims 1, 2, 5-15, 17, 18, 20, 22, 25, 28, 29, 34, 36, and 40 under 35 U.S.C. § 102(b) as being anticipated by Miller is reversed.

The Examiner's rejection of claim 1 as being unpatentable under 35 U.S.C. § 103(a) over the combination of Stott and Miller is reversed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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